CONTENTS.

	PAGE
The Mexican Zodiac. By William Bollaert, F.R.G.S., Corresponding Member of the University of Chile, etc. *With a Tinted Plate*	1
Geological Work of Frost and Fire	9
Photography at Greenwich Observatory. By Thomas W. Burr, F.R.A.S., F.C.S.	12
Lunar Details.—Colours of Stars. By the Rev. T. W. Webb, A.M., F.R.A.S.	28
An Excursion to the Crag District. By Henry Woodward, F.G.S., F.Z.S., of the British Museum. *With a Coloured Map.*	33
Results of Meteorological Observations made at the Kew Observatory. By G. M. Whipple	42
Aids to Microscopic Inquiry.—No. VI.—The Illumination of Objects	48
The Planet Saturn	54
Is Light Imponderable?	68
"Snail Leeches," with a Monograph of the British Species. By the Rev. W. Houghton, M.A., F.L.S. *With Two Plates*	81
The Exhibition of Miniatures at South Kensington. By W. M. Rossetti	91
The Weather. By A. S. Herschel, B.A.	100
Aids to Microscopic Inquiry.—No. VII.—Hairs of Plants	111
Submarine Telegraphy. By Richard Bithell, B.Sc., Ph.D. *With Five Illustrations*	115
Comets: an Account of all the Comets whose Orbits have not been Calculated. By G. F. Chambers	125
The Cattle Plague and Scientific Investigation	127
Celestial Photography.—Engelmann on Double Stars.—Crimson Star. By the Rev. T. W. Webb, A.M., F.R.A.S.	133
Remarks on Saturn. By Richard A. Proctor	143
Roman Pottery.—The Upchurch Ware. By Thomas Wright, F.S.A. *With a Coloured Plate and Two Illustrations*	161
Chacornac on the Volcanoes of the Sun	166
The Exhibition of Miniatures at the South Kensington Museum. By W. M. Rossetti. (*Concluded.*)	169
Remarks on the Structure and Actions of the Iris of the Eye in some Species of Fishes. By Jonathan Couch, F.L.S., etc.	180
Notes on Fungi.—No. IV. By the Rev. M. J. Berkeley, M.A., F.L.S. Rose-Spored Mushrooms. *With a Coloured Plate*	183
On the Change of Plumage in the Common Crossbill (Loxia Curvirostra), with a Few Remarks on their Breeding and other Habits. By "An Old Bushman."	188
A New Angle Measurer. By the Rev. N. T. Heinekken. *With an Illustration*	197
Professor Houghton's Geology	199
Davaine on Vinegar Eels	206

182584

PAGE

Clusters and Nebulæ.—Double Stars.—Occultations. By the Rev. T. W. Webb, A.M., F.R.A.S. 207
Precious Stones 216
Comets: an Account of all the Comets whose Orbits have not been Calculated. By G. F. Chambers 224
Fishes Observed at Nice, 1865.—The Chimæra and the Alepocephalus. By Richard Deakin, M.D. *With a Coloured Plate* 241
The Winds. By A. S. Herschel, B.A. 246
A Brief History of a Marine Tank. By Shirley Hibberd 259
Pleasant Ways in Science.—No. I.—Curiosities of Motion 266
Chain Suspension Roofs. By Sir John Herschel, Bart., K.H., etc., etc. *With a Facsimile of the Original Sketch* 275
On the Size of Telescopic Star Disks. By the Rev. W. R. Dawes... 276
Results of Meteorological Observations made at the Kew Observatory. By G. M. Whipple 278
Opinions on Epidemics and Epizootics 284
The Lunar Mare Serenitatis.—Double Stars.—Occultations. By the Rev. T. W. Webb, A.M., F.R.A.S. 292
The Spectroscope and the Microscope. *With an Illustration* 301
Comets: an Account of all the Comets whose Orbits have not been Calculated. By G. F. Chambers 305
Shield-Bearing Crustacea (Recent and Fossil). By Henry Woodward, F.G.S., F.Z.S. *With a Coloured Plate* 321
Cyclones. By A. S. Herschel, B.A. 329
Pleasant Ways in Science.—No. II.—Equilibrium and Repose. *With a Diagram* 342
On the Spectra of Pigments. By Henry J. Slack, F.G.S. 348
The Flint Tools of North Devon. By Townshend M. Hall, F.G.S. *With Two Plates* 350
New Experiments with Soap Bubbles. By John Broughton, B.SC. *With Three Illustrations* 358
Mr. Highley's Condenser. *With Two Illustrations* 368
M. Chacornac on the Moon.—Occultations. By the Rev. T. W. Webb, A.M., F.R.A.S. 370
Aids to Microscopic Inquiry.—No. VIII.—Honey 376
Heart Movements Graphically Displayed. By M. Marcy 378
Comets: an Account of all the Comets whose Orbits have not been Calculated. By G. F. Chambers 379
Golden Netted-leaved Orchids. By Shirley Hibberd. *With a Coloured Plate* 401
On Mud Volcanoes and Salt Lakes in the Crimea. By Professor D. T. Ansted, M.A., F.R.S. 409
A Clepsydra for Driving Telescopes. By Frederick Bird 421
On the Welwitschia Mirabilis, Hook., Fil. By John R. Jackson. *With a Tinted Plate* 424
A New Species of Cicada from the Cascade Mountains. By J. K. Lord, F.Z.S. 428
Our Future Coal Fields. By John Jones, F.G.S. 435
Hot Springs and other Natural Features of the Pyrenees. By A. S. Herschel, B.A. 439
A Substitute for the Position Micrometer. By Charles Grover. 447
Solar Physics 450
Opposition of Ceres—Occultation. By the Rev. T. W. Webb, A.M., F.R.A.S. 454
Pleasant Ways in Science.—No. III.—Identity and Change 461
Opaque Illuminators for High Powers 467
Literary Notices.—Browne's "Ice Caves of France and Switzerland," 58; Tyndall "On Radiation," 59; Brande's "Dictionary of Science, Literature, and Art, 59, 148, 389; Ritter's "Comparative Geography," 60; "Anthropological Review," 60; "Enterprise and Adventure," 61; Mona Bellair's "Hardy Ferns," 61; Notcutt's "Handbook of British

PAGE

Plants," 61; "Beale's "Archives of Medicine," 62; Pratt's "Astronomical Investigations," 62; Bacon's "Historical and Archæological Map of England and Wales," 62; Malcolm's "Genealogical Tree of the Royal Family of Great Britain," 63; Norman's "List of Diatomaceæ," 63; Blackwood's "Journal of Scottish Meteorological Society, 63; Young's "Sea-Fishing as a Sport," 146; Newman's "History of British Ferns," 148; Richardson "For and Against Tobacco," 148; Chapman "On Diarrhœa and Cholera," 390; Arnott's "Elements of Physical, and Natural Philosophy, 390; Purton's "Philocalia," 391; Gunther's "Record of Zoological Literature, 391; Descriptive Catalogue of all the Genera and Species of Crustacea, 391; British Association Charts, 391; Howard's "Seven Lectures on Scripture and Science," 393; "Astronomical Register," 394; Woodward's "Geological Magazine," 394; Bennett's "Winter in South of France" 394

PROGRESS OF INVENTION 63, 152, 227, 308, 381, 469

ARCHÆOLOGIA 71, 150, 233, 315, 385, 473

PROCEEDINGS OF LEARNED SOCIETIES.—Anthropological, 76; British Association, 236, 316; Chemical, 395; Entomological, 319, 396; Geographical, 76, 397, 476; Geological, 157, 396, 476; Liverpool Philosophical, 395; Microscopical, 397; Zoological, 157, 478.

NOTES AND MEMORANDA 78, 158, 238, 319, 399, 478

ILLUSTRATIONS.

ILLUSTRATIONS IN COLOURS.

	PAGE		PAGE
Map of the Crag District	33	Fungi	184
Snail Leeches	81	Chimæra Mediterranea	241
Pottery from Upchurch, Kent	161	Shield-bearing Crustacea	321

Anœctochilus xanthophyllus.....401

TINTED PLATES.

Mexican Zodiac	1	Flint Implements from North Devon	352, 354
Snail Leeches	88	Welwitschia mirabilis	424
Facsimile of Sketch, by Sir J. F. W. Herschel, of Suspension Roof	274		

ENGRAVINGS ON WOOD.

Drawing of Head on Ancient Tomb in Bolivia	8	Dumb-bell Nebulæ	210
Diagrams of Greenwich Photographic Apparatus	20, 22	Constellation Delphinus	298
Facsimile of Photographic Trace of 4th September, 1859	25	Spectroscope	304
Diagram of Ocean Bed	117	Diagram illustrating Gravity	345
Chart of Atlantic across which the Cable laid	121	Apparatus for Soap Bubbles,	360, 365, 366
Diagrams of Atlantic Cable	122	Highley's Condenser	368
Map of the Upchurch and Marshes	162	Clepsydra for Driving Telescope	42
Examples of Roman Pottery from Upchurch	163	Cicada Occidentalis	429
New Angle Measurer	197	Nest and Egg of Cicada	432
		Diagrams of micrometer	447
		Map of Stars	453
		Diagrams of Smith's Illuminator	467

Mexican Zodiac.